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ABSTRACT

A study examined the skill areas and skills that were generalizable within and across the secondary vocational training programs in the 32 area vocational centers in Illinois. During the project, researchers worked to develop, validate, and determine the reliability of a generalizable skills instrument and to identify which mathematics, communications, interpersonal relations, reasoning, and other skills were generalizable within and across all secondary agriculture; business, marketing, and management; health; home economics; and industrial training programs in Illinois. After conducting a comprehensive literature review, the researchers developed a questionnaire entitled the Generalizable Skills Importance Questionnaire (GSIQ) that included four skill areas and 102 skills. Based on an analysis of 489 questionnaires that were completed by vocational instructors throughout Illinois, the researchers determined that the GSIQ had internal consistency reliability coefficients ranging from .90 to .98. Analysis of the completed questionnaires also revealed a core of mathematics, communications, interpersonal relations, and reasoning skills that are generalizable within and across secondary vocational programs in Illinois. (Appended to this report is a copy of the GSIQ that contains a detailed breakdown of the results of the above-mentioned survey.) (MN)

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Identification of Generalizable Skills in Secondary Vocational Programs

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Research and Development Section

June, 1983

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Introduction

During recent years increased public attention has focused on the skills and abilities needed to participate in our society. Skills required to live independently and to obtain gainful employment have become more emphasized in both educational settings and the world of work. In particular, the field of vocational education has begun to focus attention in the area of basic skills. Acquisition of basic skills is commonly believed to be necessary for success in vocational training programs and occupations.

Several recent studies have focused on the concept of transferable skills as applied to occupations, vocational programs, or skills that differentiate people from one another (McKinlay, 1976; Altman, 1976; Sticht, 1978; Mikulecky & Diehl, 1979; Moe, Rush, & Storlie, 1979; Boyd & Cline, 1981; Moorehouse, 1981; Harding, 1981, Baker, 1981). The concept of transferable or generalizable skills appears to be largely an unmet and important need with significant implications for what and how vocational education is provided in the future. Skills, knowledge, and attitudes involved in vocational training programs and employment settings are learned behaviors and are all potentially generalizable. However, no single, definitive, and agreed upon list exists, but there appears to be considerable consensus on many partial lists. Pratzner (1978) and Ashley and Ammerman (1978) claimed: (a) objective or non-arbitrary criteria do not seem to exist to decide whether one list is better or more valid than another, (b) items on many lists appear to be of equal importance, (c) several skills or attitudes somehow seem non-specific, vague, or reduced to a simple level of specificity, (d) the

lists do not reflect adequately if at all the interrelationships, specificity, richness, and complexity of some skills and combinations of skills, and (e) it is very difficult to cross-reference items in several lists or to combine or consolidate lists. These claims seem substantiated in the present review of literature. In addition, the skills identified in most studies have been drawn almost exclusively from employment settings. Minimal research regarding generalizable skills has focused on vocational training programs or the combined skill requirements of vocational programs and occupations.

Several research studies have reviewed, identified, analyzed, and summarized transferable or generalizable skills and have concluded that there were five skill areas which appear highly generalizable: (a) mathematics, (b) communications, (c) interpersonal relations, (d) reasoning, and (e) manipulative (Sjogren, 1977; Kawula & Smith, 1975; Greenan & Smith, 1981, Greenan, 1982). These skill areas include problem solving, decision making, social skills of work (e.g., work habits, attitudes, and values) and technical skills. Similar skill areas and skills need to be specified and developed to high levels of mastery in students (Pratzner, 1981). Students need to be informed of the skills they have acquired and their level of proficiency, and those skills not acquired or not developed that are necessary for continued training and employment success.

Purpose of the Study

The central problem investigated in this study was to determine the skill areas and skills that were generalizable within and across the secondary vocational training programs in the 32 area vocational centers (AVC) in the State of Illinois. The specific research problem was to

(a) develop, validate, and determine the reliability of a generalizable skills instrument, and (b) identify which mathematics, communications, interpersonal relations, reasoning skills, and other skills were generalizable within and across all secondary agricultural; business, marketing, and management; health; home economics; and industrial occupations training programs. In order to resolve the research problem the following objectives were developed:

1. Identify and validate a list of skills which is potentially generalizable and related to success in secondary vocational training programs.
2. Construct a survey questionnaire to assess the relative importance of a list of skills as it relates to the content of secondary vocational training programs.
3. Determine the reliability of the Generalizable Skills Importance Questionnaire in terms of internal consistency reliability.
4. Identify the skill areas and skills that are generalizable within and across secondary vocational training program areas and programs.

Population

The population for this study consisted of the 593 secondary vocational training teachers in the thirty-two (32) AVCs in the State of Illinois. All teachers in each of the five (5) vocational training program areas were chosen to participate and included: agricultural occupations; business, marketing, and management occupations; health occupations; home economics occupations; and industrial occupations.

Instrumentation

The instrument development process included a comprehensive review of the literature to identify skills in previous research studies. An initial draft list was developed that included four (4) skill areas and 102 skills: (a) 26 mathematics skills, (b) 30 communications skills, (c)

18 interpersonal relations skills, and (d) 28 reasoning skills. The draft list of skills was reviewed by the project advisory committee, survey research laboratory personnel at the University of Illinois, a sample of AVC directors and teachers, and a sample of employers/employees. Based on the reviewers' comments, additions, and/or deletions in terms of content, meaning, clarity, and readability a final list of skills was produced which was (a) perceived to possess both content and face validity, and (b) potentially generalizable and related to success in secondary vocational training programs.

The previously identified list of generalizable skills was used as the basis for writing items and constructing the "Generalizable Skills Importance Questionnaire (GSIQ)." The GSIQ which contained a seven-point Likert-Type scale based on "degree of importance," was designed to survey secondary vocational training teachers in order to determine the skills that were perceived as most necessary or important for students to successfully perform in their respective programs. The GSIQ was also intended to identify skills that were generalizable within and across several secondary vocational training program areas and programs.

The project advisory committee members, survey research laboratory personnel, and a sample of ten (10) AVC directors and teachers reviewed and critiqued the GSIQ. The purpose of this procedure was to (a) identify additional skills, and (b) determine whether the reviewers understood the directions and items in terms of content, meaning, clarity, and readability. Based on the reviewers' comments, additions, and/or deletions, the necessary revisions were made. The final version of the GSIQ was then produced and perceived to possess

both content and face validity, and to be potentially capable of reliably measuring the importance of generalizable skills relative to success in secondary vocational training programs.

Data Collection

Information regarding the types and number of vocational training program areas, programs, and numbers of teachers were collected from the 32 secondary AVC directors in the State of Illinois. During the fourth week of October, 1982, each of the AVC directors received a cover letter; a GSIQ for each teacher in his center; instructions for distributing, collecting, and returning the GSIQs; and a self-addressed mailing envelope for returning the completed GSIQs. The directors were instructed to distribute a GSIQ to each teacher, collect the GSIQs, and return the completed GSIQs by the third week of November, 1982. At that time, a follow-up telephone call was made to each non-responding director. The data collection process was concluded during the third week of December, 1982. Each of the 32 (100%) AVC directors returned a package of completed GSIQs. Four hundred and eighty-nine (489) or 82.46% of the total number of 593 AVC teachers across the vocational training program areas and programs completed GSIQs, and each GSIQ was usable.

Data Analysis

The data obtained from the GSIQs were analyzed individually and collectively by program area, program, skill area, and skill. Descriptive statistics were used to analyze, explain, and discuss the data. Means, standard deviations, sample sizes, and reliability coefficients were computed using the Statistical Packages for the Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975).

The reliability of the GSIQ was determined in terms of internal consistency reliability. Internal consistency reliability generally refers to the consistency or homogeneity of performance over all items on an instrument or scale within an instrument (Nunnally, 1978). The coefficient of internal consistency indicates the degree to which the items intercorrelate. Thus, the higher the coefficient of internal consistency, the greater is the instrument's capability of consistently and accurately measuring the trait(s) which it intends to measure. The rationale for these analyses suggested that if the teachers were rating the skills accurately and consistently, there should be high internal consistency reliability coefficients for the Generalizable Skills Importance Questionnaire within and across vocational training program areas. Cronbach's Coefficient Alpha (Cronbach, 1971) which is based on the average correlation among items within an instrument was used to estimate the internal consistency of the GSIQ. Internal consistency reliability coefficients of .80 or greater for measuring instruments are usually considered adequate (Nunnally, 1978). Therefore, for this study, an individual skill area or total instrument coefficient of .80 or larger was considered adequate and acceptable.

The GSIQs provided descriptive data which related the relative importance, as perceived by vocational teachers, of a list of skills in terms of being necessary for students to successfully perform in the vocational training programs in which they were enrolled. The teachers' responses from the seven-point importance scale which used three anchors (not important, moderately important, very important) were collectively translated into levels of skill generalizability and need that included: (a) low, $\bar{x}$=1.00-2.99, (b) medium, $\bar{x}$=3.00-5.00, and (c)

high, $\bar{x}$=5.01-7.00. Thus, the levels of skill generalizability and need were identified and described within and across program areas, programs, skill areas, and skills.

Results

The general findings and conclusions of this study include:

1. The process for identifying the list of generalizable skills was based on a logical plan that included a comprehensive review of the literature, identification of an item pool, analysis and synthesis of items from the pool, and reviews and evaluations of the list by a panel of experts.

2. The GSIQ instrument construction process was based on a logical plan including the selection of the identified list of generalizable skills, development of an appropriate scale for the intended purpose, writing and scaling the items, and writing directions for using the instrument.

3. The internal consistency reliability coefficients for the GSIQ ranged from .90 to .98. These values suggested that the GSIQ skill areas and items, individually and collectively, were very highly accurate and consistent measures of skill generalizability and need. All coefficients were well above .80 and therefore considered adequate and acceptable. The findings suggested that the GSIQ mathematics, communications, interpersonal relations, and reasoning skill areas and skills are reliable measures of generalizable skills within and across secondary agricultural; business, marketing, and management; health; home economics; and industrial occupations vocational training programs.

4. There is a core of mathematics, communications, interpersonal relations, and reasoning skills which are generalizable within and across secondary agricultural; business, marketing, and management; health; home economics; and industrial occupations training programs (See Table 1).

Implications

Vocational education has become increasingly aware of the need to provide all students with appropriately designed individualized instruction and support services necessary to succeed in vocational programs. Students frequently enroll in vocational programs with below average proficiencies in skill areas, such as, reading and mathematics. Typi-

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cally, vocational students' skill levels may be one (1) standard deviation below the entire student population. At the same time, reading, mathematics, and other skills may be very important to succeed in vccational training programs and occupations.

Although students may continue to acquire the essential vocational/technical competencies for a given occupation, in many instances they may be unsuccessful in completing their vocational programs and not increase their proficiencies in the generalizable or "basic skill" areas. In addition, vocational education (and other fields) has often used skills and standardized tests to classify students, assess students' learning problems, and guide curriculum development. These tests and procedures frequently have had a questionable relationship to the content of vocational programs. Thus, their reliability and validity are suspect regarding usefulness and application for vocational studerts and school personnel.

This study attempted to identify those generalizable skills which are basic to, necessary for success in, and transferable or common within and/or across secondary vocational training program areas and programs. The expectation is that the results of this study will provide vocational teachers, administrators, counselors, and other school personnel with information regarding the generalizable skills requirements in vocational training programs. The information should assist in individualized program assessment, planning, implementation, and evaluation. School personnel will become aware and should begin or continue to deal with the problem of providing students with the necessary instruction and support services to successfully complete vocational programs and enter occupations.

This study also provides a basis for eventual development of functional assessment procedures and strategies with which students, teachers, and other school personnel can measure students' generalizable skill levels. The subsequent procedures and instruments could assess learning abilities or diagnose difficulties, and identify those students who may have functional learning problems. The information from such assessments could suggest instructional needs, and provide a basis for determining and delivering the appropriate support services students need to succeed in their chosen vocational programs.

TABLE 1

Generalizability of Mathematics, Communications, Interpersonal Relations, and Reasoning Skills in Secondary Agricultural; Business, Marketing, and Management; Health; Home Economics; and Industrial Occupations Training Programs.

KEY

- High Generalizability ($\bar{x}$ = 5.01 - 7.00)
- Medium Generalizabili ($\bar{x}$ = 3.00 - 5.00)
- Low Generalizability ($\bar{x}$ = 1.00 - 2.99)

Mathematics Skills

Whole Numbers

1. Read, write, and count single and multiple digit whole numbers
2. Add and subtract single and multiple digit whole numbers
3. Multiply and divide single and multiple digit whole numbers
4. Use addition, subtraction, multiplication, and division to solve word problems with single and multiple digit whole numbers
5. Round off single and multiple digit whole numbers

Fractions

6. Read and write common fractions
7. Add and subtract common fractions
8. Multiply and divide common fractions
9. Solve word problems with common fractions

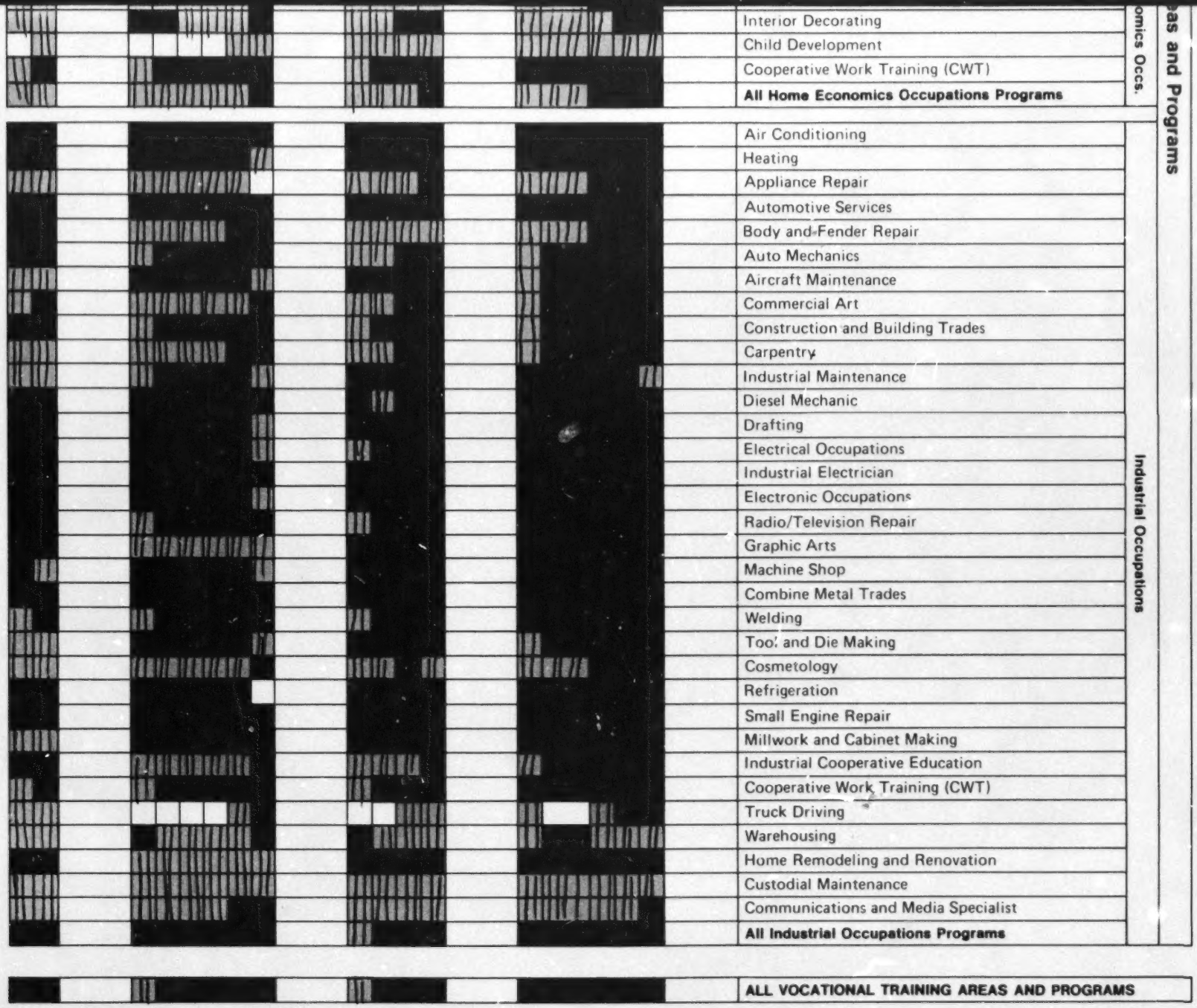
Decimals

10. Carry out arithmetic computations involving dollars and cents
11. Read and write decimals in one and more places
12. Round off decimals to one or more places
13. Multiply and divide decimals in one or more places
14. Add and subtract decimals in one or more places
15. Solve word problems with decimals in one or more places

Percent

16. Read and write percents
17. Compute percents

Vocational Training Ar
Agricultural Occs.
Agricultural Mechanics
Ornamental Horticulture
Agricultural Cooperative Education
Conservation
Cooperative Work Training (CWT)
All Agricultural Occupations Programs
Business, Marketing and Management Occs.
Advertising Services
General Merchandise (Sales)
Personal Services (Sales)
Marketing Cooperative (D.E.)
Accounting and Computing Occupations
Business Data Processing Systems
Computer Programming
Filing, Office Machines
General Office Clerking
Executive Secretary Science
Secretarial
Office Occupations Cooperative Education
Cooperative Work Training (CWT)
Word Processing
Hospitality (Travel and Travel Service)
Clerical Occupations
Office Occupations
All Bus., Markot., and Mgmt. Occupations Programs
Health Occupations
Dental Assisting
Practical Nursing
Nurse Aide
Health Care Aide
Medical Assisting
Health Aide
Medical Records
Health Occupations Cooperative Education
Cooperative Work Training (CWT)
Health Occupations
All Health Occupations Programs
Home Econ
Child Care
Clothing Management, Production, and Service
Food Management, Production, and Service
Home Economics Cooperative Education



	Interior Decorating
	Child Development
	Cooperative Work Training (CWT)
	All Home Economics Occupations Programs
	Air Conditioning
	Heating
	Appliance Repair
	Automotive Services
	Body and Fender Repair
	Auto Mechanics
	Aircraft Maintenance
	Commercial Art
	Construction and Building Trades
	Carpentry
	Industrial Maintenance
	Diesel Mechanic
	Drafting
	Electrical Occupations
	Industrial Electrician
	Electronic Occupations
	Radio/Television Repair
	Graphic Arts
	Machine Shop
	Combine Metal Trades
	Welding
	Tool and Die Making
	Cosmetology
	Refrigeration
	Small Engine Repair
	Millwork and Cabinet Making
	Industrial Cooperative Education
	Cooperative Work Training (CWT)
	Truck Driving
	Warehousing
	Home Remodeling and Renovation
	Custodial Maintenance
	Communications and Media Specialist
	All Industrial Occupations Programs
	ALL VOCATIONAL TRAINING AREAS AND PROGRAMS

omics Occs.

Industrial Occupations

as and Programs

KEY

■ - High Generalizability ($\bar{x}$ = 5.01 - 7.00)

▤ - Medium Generalizability ($\bar{x}$ = 3.00 - 5.00)

□ - Low Generalizability ($\bar{x}$ = 1.00 - 2.99)

Mixed Operations

18. Convert fractions to decimals, percents to fractions, fractions to percents, percents to decimals, decimals to percents, common fractions or mixed numbers to decimal fractions, and decimal fractions to common fractions or mixed numbers
19. Solve word problems by selecting and using correct order of operations
20. Perform written calculations quickly
21. Compute averages

Measurement and Calculation

22. Read numbers or symbols from time, weight, distance, and volume measuring scales
23. Use a measuring device to determine an object's weight, distance, or volume in standard (English) units
24. Use a measuring device to determine an object's weight, distance, or volume in metric units
25. Perform basic metric conversions involving weight, distance, and volume
26. Solve problems involving time, weight, distance, and volume
27. Use a calculator to perform basic arithmetic operations to solve problems

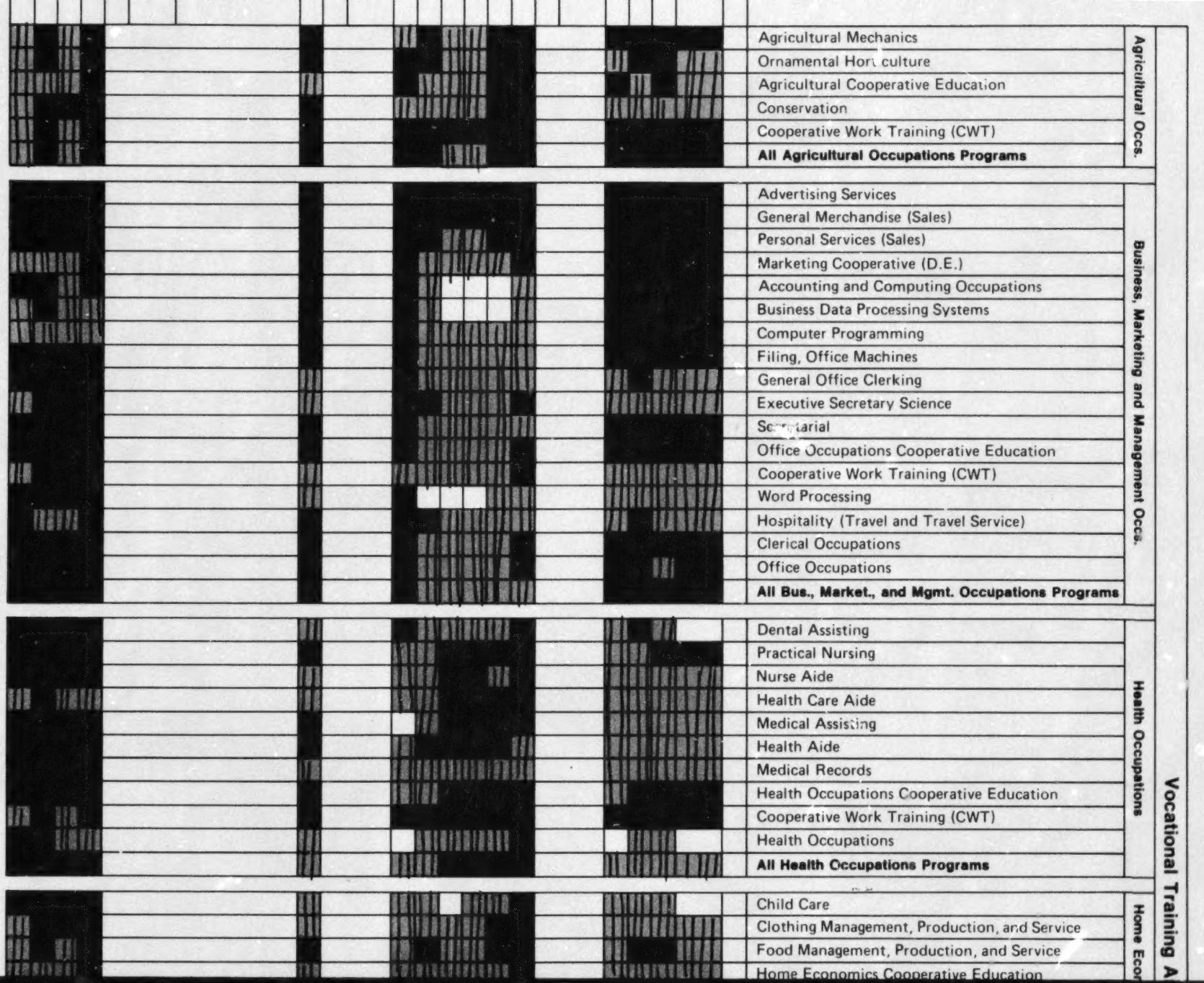
Estimation

28. Determine if a solution to a mathematical problem is reasonable

Communications Skills

Words and Meanings

1. Use plural words appropriately in writing and speaking
2. Use appropriate contractions and shortened forms of words by using an apostrophe in writing and speaking
3. Use appropriate abbreviations of words in writing and speaking
4. Use words appropriately which mean the same as other words but are spelled differently


Vocational Training A
Agricultural Occs.
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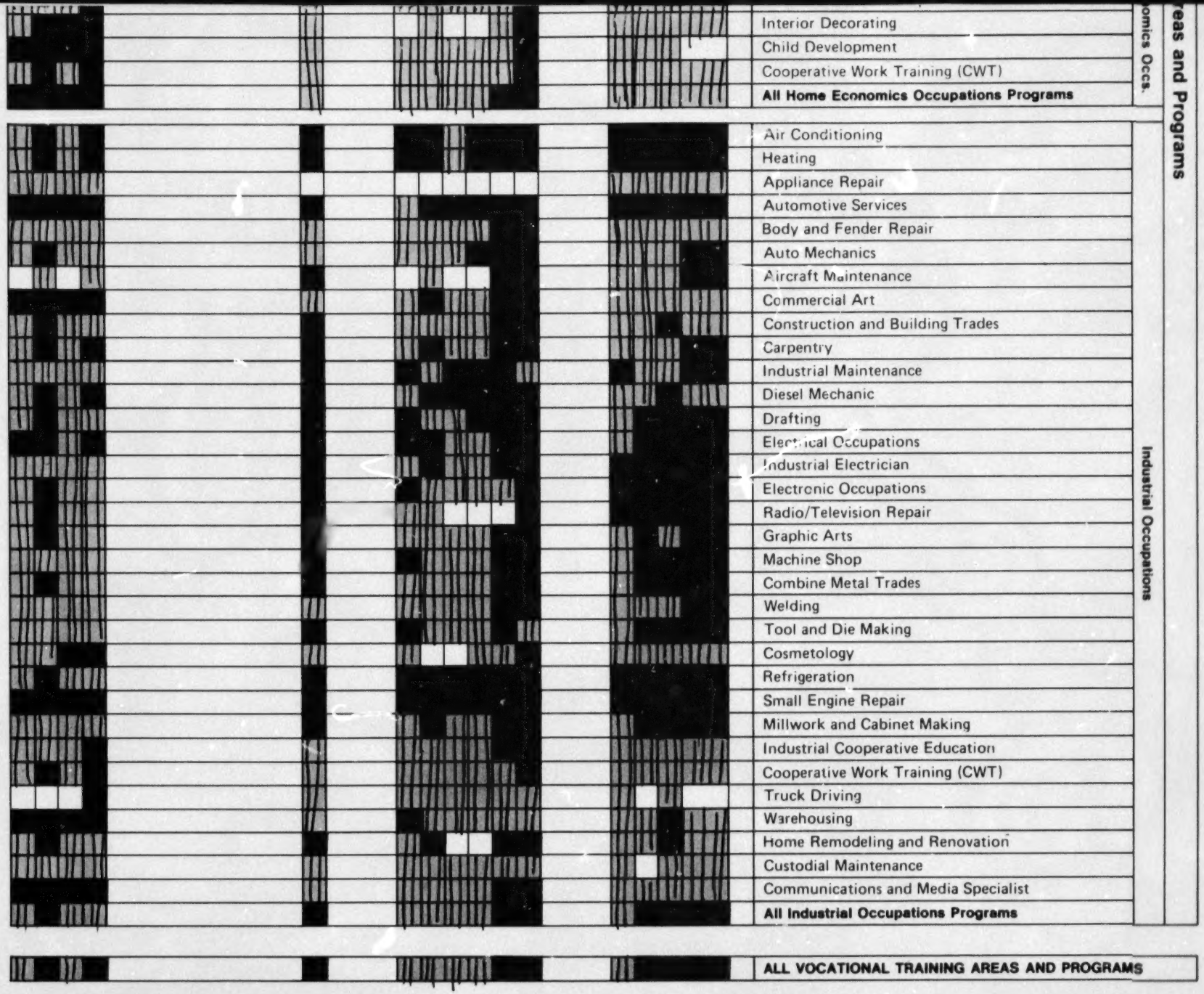
Business, Marketing and Management Occs.
Advertising Services
General Merchandise (Sales)
Personal Services (Sales)
Marketing Cooperative (D.E.)
Accounting and Computing Occupations
Business Data Processing Systems
Computer Programming
Filing, Office Machines
General Office Clerking
Executive Secretary Science
Secretarial
Office Occupations Cooperative Education
Cooperative Work Training (CWT)
Word Processing
Hospitality (Travel and Travel Service)
Clerical Occupations
Office Occupations
All Bus., Market., and Mgmt. Occupations Programs
Health Occupations
Dental Assisting
Practical Nursing
Nurse Aide
Health Care Aide
Medical Assisting
Health Aide
Medical Records
Health Occupations Cooperative Education
Cooperative Work Training (CWT)
Health Occupations
All Health Occupations Programs
Home Eco
Child Care
Clothing Management, Production, and Service
Food Management, Production, and Service
Home Economics Cooperative Education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ALL VOCATIONAL TRAINING AREAS AND PROGRAMS

KEY

- High Generalizability ($\bar{x}$ = 5.01 - 7.00)
- Medium Generalizability ($\bar{x}$ = 3.00 - 5.00)
- Low Generalizability ($\bar{x}$ = 1.00 - 2.99)

5. Use words correctly which sound the same as other words but that have different meanings and spellings
6. Use words appropriately which are opposite of one another
7. Use appropriate word choices in writing and speaking
8. Add appropriate beginnings and endings to words to change their meaning
9. Punctuate one's own correspondence, directives, or reports

Reading
10. Read, understand, and find information or gather data from books, manuals, directories, or other documents
11. Restate or paraphrase a reading passage to confirm one's own understanding of what was read
12. Read and understand forms
13. Read and understand short notes, memos, and letters
14. Read and understand graphs, charts, and tables to obtain factual information
15. Understand the meanings of words in sentences
16. Use a standard dictionary to obtain the meaning, pronunciation, and spelling of words
17. Use the telephone and look up names, telephone numbers, and other information in a telephone directory to make local and long distance calls

Writing
18. Review and edit other's correspondence, directives, or reports
19. Compose logical and understandable written correspondence, directives, memos, short notes, or reports
20. Write logical and understandable statements, phrases, or sentences to accurately fill out forms

Speaking
21. Speak fluently with individuals or groups
22. Pronounce words correctly
23. Speak effectively using appropriate behaviors such as eye contact, posture, and gestures

Vocational Training A
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Health Occupations
Dental Assisting
Practical Nursing
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Interior Decorating
Child Development
Cooperative Work Training (CWT)
All Home Economics Occupations Programs

Industrial Occupations

Air Conditioning
Heating
Appliance Repair
Automotive Services
Body and Fender Repair
Auto Mechanics
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Diesel Mechanic
Drafting
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Radio/Television Repair
Graphic Arts
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Small Engine Repair
Millwork and Cabinet Making
Industrial Cooperative Education
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Truck Driving
Warehousing
Home Remodeling and Renovation
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ALL VOCATIONAL TRAINING AREAS AND PROGRAMS

KEY

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▤ - Medium Generalizabilit ($\bar{x}$ = 3.00 - 5.00)

□ - Low Generalizability ($\bar{x}$ = 1.00 - 2.99)

Listening
24. Restate or paraphrase a conversation to confirm one's own understanding of what was said
25. Ask appropriate questions to clarify another's written or oral communications
26. Attend to nonverbal cues such as eye contact, posture, and gestures for meanings in other's conversations
27. Take accurate notes which summarize the material presented from spoken conversations

Interpersonal Relations Skills

Work Behaviors
1. Work effectively under different kinds of supervision
2. Work without the need for close supervision
3. Work cooperatively as a member of a team
4. Get along and work effectively with people of different personalities
5. Show up regularly and on time for activities and appointments
6. Work effectively when time, tension, or pressure, are critical factors for successful performance
7. See things from another's point of view
8. Engage appropriately in social interaction and situations
9. Take responsibility and be accountable for the effects of one's own judgments, decisions, and actions
10. Plan, carry out, and complete activities at one's own initiation

Instructional and Supervisory Conversations
11. Instruct or direct someone in the performance of a specific task
12. Follow instructions or directions in the performance of a specific task
13. Demonstrate to someone how to perform a specific task
14. Assign others to carry out specific tasks
15. Speak with others in a relaxed and self-confident manner
16. Compliment and provide constructive feedback to others at appropriate times

Vocational Training A

Agricultural Occs.

- Agricultural Mechanics
- Ornamental Horticulture
- Agricultural Cooperative Education
- Conservation
- Cooperative Work Training (CWT)
- **All Agricultural Occupations Programs**

Business, Marketing and Management Occs.

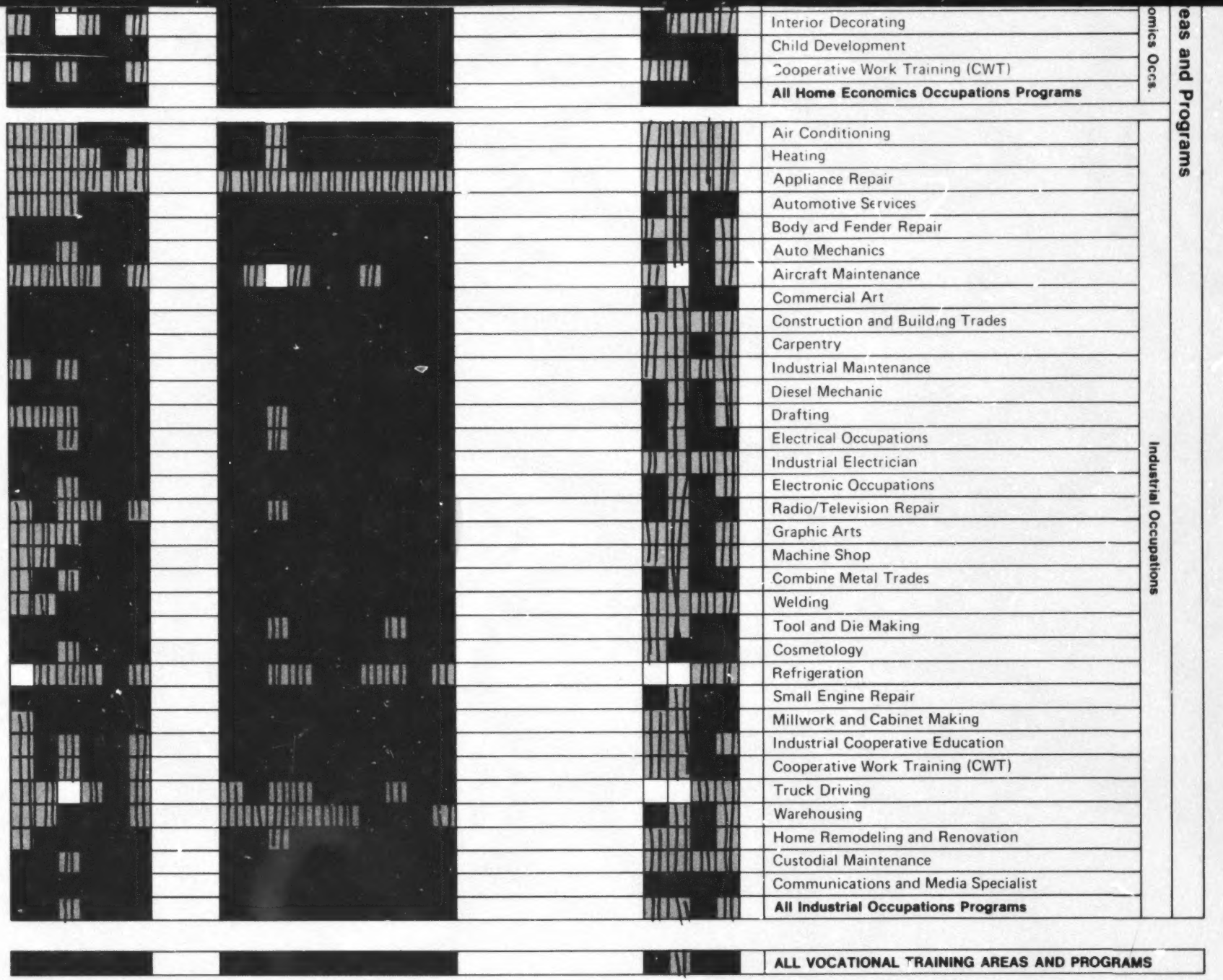
- Advertising Services
- General Merchandise (Sales)
- Personal Services (Sales)
- Marketing Cooperative (D.E.)
- Accounting and Computing Occupations
- Business Data Processing Systems
- Computer Programming
- Filing, Office Machines
- General Office Clerking
- Executive Secretary Science
- Secretarial
- Office Occupations Cooperative Education
- Cooperative Work Training (CWT)
- Word Processing
- Hospitality (Travel and Travel Service)
- Clerical Occupations
- Office Occupations
- **All Bus., Market., and Mgmt. Occupations Programs**

Health Occupations

- Dental Assisting
- Practical Nursing
- Nurse Aide
- Health Care Aide
- Medical Assisting
- Health Aide
- Medical Records
- Health Occupations Cooperative Education
- Cooperative Work Training (CWT)
- Health Occupations
- **All Health Occupations Programs**

Home Econ

- Child Care
- Clothing Management, Production, and Service
- Food Management, Production, and Service
- Home Economics Cooperative Education



	Interior Decorating
	Child Development
	Cooperative Work Training (CWT)
	All Home Economics Occupations Programs
	Air Conditioning
	Heating
	Appliance Repair
	Automotive Services
	Body and Fender Repair
	Auto Mechanics
	Aircraft Maintenance
	Commercial Art
	Construction and Building Trades
	Carpentry
	Industrial Maintenance
	Diesel Mechanic
	Drafting
	Electrical Occupations
	Industrial Electrician
	Electronic Occupations
	Radio/Television Repair
	Graphic Arts
	Machine Shop
	Combine Metal Trades
	Welding
	Tool and Die Making
	Cosmetology
	Refrigeration
	Small Engine Repair
	Millwork and Cabinet Making
	Industrial Cooperative Education
	Cooperative Work Training (CWT)
	Truck Driving
	Warehousing
	Home Remodeling and Renovation
	Custodial Maintenance
	Communications and Media Specialist
	All Industrial Occupations Programs
	ALL VOCATIONAL TRAINING AREAS AND PROGRAMS

omics Occs.

Industrial Occupations

eas and Programs

KEY

- High Generalizability ($\bar{x}$ = 5.01 - 7.00)
- Medium Generalizability ($\bar{x}$ = 3.00 - 5.00)
- Low Generalizability ($\bar{x}$ = 1.00 - 2.99)

Conversations
17. Be able to handle criticism, disagreement, or disappointment during a conversation
18. Initiate and maintain task focused or friendly conversations with another individual
19. Initiate, maintain, and draw others into task focused or friendly group conversations
20. Join in task focused or friendly group conversations

Reasoning Skills

Verbal Reasoning
1. Generate or conceive of new or innovative ideas
2. Try out or consciously attempt to use previously learned knowledge and skills in a new situation
3. Understand and explain the main idea in another's written or oral communication
4. Recall ideas, facts, theories, principles, and other information accurately from memory
5. Organize ideas and put them into words rapidly in oral and written conversations
6. Interpret feelings, ideas, or facts in terms of one's own personal viewpoint or values
7. State one's point of view, opinion, or position in written or oral communication
8. Defend one's point of view, opinion, or position in written or oral communication
9. Distinguish between fact and opinion in one's own and in other's written and oral communication
10. Identify the conclusions in other's written or oral communication
11. Identify the reasons offered by another and evaluate their relevance and strength of support for a conclusion
12. Compile one's own notes taken on several written sources into a single report
13. Compile ideas, notes, and materials supplied by others into a single report
14. Carry out correctly written or oral instructions given by another
15. Observe another's performance of a task to identify whether the perfomance is satisfactory or needs to be improved
16. Ask questions about another's performance of a task to identify whether the performance is satisfactory or needs to be improved

Vocational Training Ar

Agricultural Occs.

- Agricultural Mechanics
- Ornamental Horticulture
- Agricultural Cooperative Education
- Conservation
- Cooperative Work Training (CWT)
- **All Agricultural Occupations Programs**

Business, Marketing and Management Occs.

- Advertising Services
- General Merchandise (Sales)
- Personal Services (Sales)
- Marketing Cooperative (D.E.)
- Accounting and Computing Occupations
- Business Data Processing Systems
- Computer Programming
- Filing, Office Machines
- General Office Clerking
- Executive Secretary Science
- Secretarial
- Office Occupations Cooperative Education
- Cooperative Work Training (CWT)
- Word Processing
- Hospitality (Travel and Travel Service)
- Clerical Occupations
- Office Occupations
- **All Bus., Market., and Mgmt. Occupations Programs**

Health Occupations

- Dental Assisting
- Practical Nursing
- Nurse Aide
- Health Care Aide
- Medical Assisting
- Health Aide
- Medical Records
- Health Occupations Cooperative Education
- Cooperative Work Training (CWT)
- Health Occupations
- **All Health Occupations Programs**

Home Econ

- Child Care
- Clothing Management, Production, and Service
- Food Management, Production, and Service
- Home Economics Cooperative Education

		Interior Decorating	omics Occs.
		Child Development	
		Cooperative Work Training (CWT)	
		All Home Economics Occupations Programs	
		Air Conditioning	Industrial Occupations
		Heating	
		Appliance Repair	
		Automotive Services	
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		Auto Mechanics	
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Problem Solving
17. Recognize or identify the existence of a problem given a specific set of facts
18. Ask appropriate questions to identify or verify the existence of a problem
19. Enumerate the possible causes of a problem
20. Use efficient methods for eliminating the causes of a problem
21. Judge the credibility of a source of information
22. Identify important information needed to solve a problem
23. Identify other's and one's own assumptions relating to a problem
24. Generate or conceive of possible alternative solutions to a problem
25. Describe the application and likely consequences of possible alternative problem solutions
26. Compare the application and likely consequences of alternative problem solutions and select a solution that represents the best course of action to pursue

Planning
27. Sort objects according to similar physical characteristics including shape, color, and size
28. Estimate weight of various objects of different shapes, sizes and makeup
29. Estimate length, width, height, and distance between objects
30. Use the senses of touch, sight, smell, taste, and hearing
31. Set priorities or the order in which several tasks will be accomplished
32. Set the goals or standards for accomplishing a specific task
33. Enumerate a set of possible activities needed to accomplish a task
34. Determine how specific activities will assist in accomplishing a task
35. Select activities to accomplish a specific task
36. Determine the order of the activities or step-by-step process by which a specific task can be accomplished
37. Estimate the time required to perform activities needed to accomplish a specific task
38. Locate information about duties, methods, and procedures to perform the activities needed to accomplish a specific task
39. Locate information and select the materials, tools, equipment, or other resources to perform the activities needed to accomplish a specific task
40. Revise or update periodically plans and activities for accomplishing a specific task

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